AMENDMENTS TO THE CLAIMS

Listing of Claims

The following listing of claims replaces all previous listings or versions thereof:

1. (Previously presented) A method of detecting target-probe interactions comprising:

   (a) providing a filament with a plurality of a first probe disposed in an annular fashion thereon;

   (b) traversing the filament through a first chamber, wherein the first chamber contains the target in solution; and

   (c) assessing binding of the target to a member of the plurality of the first probe.

2. (Canceled)

3. (Previously presented) The method of claim 1, wherein the plurality of the first probe is associated with a probe identifier.

4. (Original) The method of claim 1, wherein the filament has a plurality of different probes disposed thereon.

5. (Original) The method of claim 4, wherein the plurality of different probes are disposed in a single ring around the filament.

6. (Original) The method of claim 5, wherein each of the plurality of different probes is associated with a distinct probe identifier.

7. (Original) The method of claim 1, further comprising traversing the filament through a second chamber, wherein the second chamber contains a solution that lacks the target.

8. (Original) The method of claim 7, wherein the second chamber comprises a solution for pre-processing or post-processing of the filament.

9. (Original) The method of claim 8, wherein the preprocessing comprises making an array, chemical blocking of a reactive group on the target, ionic blocking of a target, or denaturing of a target.

10. (Original) The method of claim 8, wherein the post-processing comprises deblocking of a reactive group on the target, removal of an ionic blocker, or renaturing of a target molecule.

11. (Original) The method of claim 1, wherein the target is labeled with a fluorescent label, a chemilluminescent label, a radioactive label, a magnetic label, or a spin resonance label.

12. (Original) The method of claim 3, wherein the probe identifier is a bar code.

13. (Original) The method of claim 12, wherein the bar code is disposed in an annular fashion.

14. (Original) The method of claim 12, wherein the bar code is disposed in a linear fashion.

15. (Original) The method of claim 1, further comprising convective transport of the target solution by means of filament movement through the first chamber.

16. (Original) The method of claim 1, wherein the filament comprises surface features to enhance mixing of the target solution.

17. (Original) The method of claim 1, wherein the first chamber comprises surface features to enhance mixing of the target solution.

18. (Original) The method of claim 1, wherein the filament is transparent.

19. (Original) The method of claim 1, wherein the filament is adapted to incorporate an electrical charge.

20. (Original) The method of claim 19, further comprising subjecting the target to electrophoretic movement.

21. (Original) The method of claim 20, wherein the electrophoretic movement promotes target-probe interaction.

22. (Original) The method of claim 20, wherein the electrophoretic movement inhibits target-probe interaction.

23. (Original) The method of claim 1, further comprising a second traversing of the filament through a chamber comprising the target.

24. (Original) The method of claim 23, wherein the chamber used for the second traversing is the same chamber in step (b).

25. (Original) The method of claim 23, wherein the chamber used for the second traversing is a different chamber than in step (b).

26. (Previously presented) The method of claim 23, wherein a temperature in the chamber used for the second traversing is altered from that used in step (b).

27. (Previously presented) The method of claim 23, wherein a charge in the chamber used for the second traversing is altered from that used in step (b).

28. (Previously presented) The method of claim 23, wherein a current, amperage, voltage or polarity in the chamber used for the second traversing is altered from that used in step (b).

29. (Original) The method of claim 15, further comprising re-circulating target solution from the first chamber.

30. (Previously presented) The method of claim 1, further comprising enhancing detection of binding of the target to the first probe.

31. (Original) The method of claim 30, wherein enhancing comprises traversing the filament through a second processing chamber that contains

(i) a second liquid phase probe that binds to the target at a location distinct from the first probe, and wherein the second liquid phase probe contains a binding site for a third liquid phase probe; and

(ii) a third liquid phase probe that is detectable.

32. (Original) The method of claim 31, wherein the third liquid phase probe is provided in an inactive state and then activated to facilitate amplification.

33. (Original) The method of claim 32, wherein the third liquid phase probe is labeled with a fluorescent, a chemilluminescent or a radioactive molecule.

34. (Original) The method of claim 32, wherein the third liquid phase probe is a linear molecule with a binding site for itself.

35. (Original) The method of claim 32, wherein the third liquid phase probe is a branched molecule with multiple binding sites for itself.

36. (Original) The method of claim 1, wherein the filament is 1 μm to about 0.5 cm in diameter.

37. (Original) The method of claim 1, wherein the processing chamber is greater than 1 μm in diameter and less than 2.0 cm.

38. (Original) The method of claim 1, wherein the target solution in the processing chamber is present in a volume of less than 100 μl.

39. (Previously presented) The method of claim 1, wherein the filament comprises an axial or radial probe density of greater than 1 probe region per cm.

40-78. (Canceled)

79. (Currently amended) A method of detecting target-probe interactions comprising:

(a) providing a filament with a plurality of different probes disposed thereon;
(b) traversing the filament through a first chamber, wherein the first chamber contains the target in solution; and
(c) assessing binding of the target to more than one of the probes.

80. (Previously presented) The method of claim 79, wherein the plurality of probes are disposed on said filament in annular fashion.

81. (Previously presented) The method of claim 79, wherein the plurality of probes is associated with a probe identifier.

82. (Canceled)

83. (Currently amended) The method of claim **[[82]]**, wherein each of the plurality of different probes is associated with a distinct probe identifier.

84. (Previously presented) The method of claim 79, further comprising traversing the filament through a second chamber, wherein the second chamber contains a solution that lacks the target.

85. (Previously presented) The method of claim 84, wherein the second chamber comprises a solution for pre-processing or post-processing of the filament.

86. (Previously presented) The method of claim 85, wherein the preprocessing comprises making an array, chemical blocking of a reactive group on the target, ionic blocking of a target, or denaturing of a target.

87. (Currently amended) The method of claim **[[**84**]]**85, wherein the post-processing comprises deblocking of a reactive group on the target, removal of an ionic blocker, or renaturing of a target molecule.

88. (Previously presented) The method of claim 79, wherein the target is labeled with a fluorescent label, a chemilluminescent label, a radioactive label, a magnetic label, or a spin resonance label.

89. (Previously presented) The method of claim 81, wherein the probe identifier is a bar code.

90. (Previously presented) The method of claim 79, wherein the bar code is disposed in an annular fashion.

91. (Previously presented) The method of claim 89, wherein the bar code is disposed in a linear fashion.

92. (Previously presented) The method of claim 79, further comprising convective transport of the target solution by means of filament movement through the first chamber.

93. (Previously presented) The method of claim 79, wherein the filament comprises surface features to enhance mixing of the target solution.

94. (Previously presented) The method of claim 79, wherein the first chamber comprises surface features to enhance mixing of the target solution.

95. (Previously presented) The method of claim 79, wherein the filament is transparent.

96. (Previously presented) The method of claim 79, wherein the filament is adapted to incorporate an electrical charge.

97. (Currently amended) The method of claim [[99]]79, further comprising subjecting the target to electrophoretic movement.

98. (Previously presented) The method of claim 97, wherein the electrophoretic movement promotes target-probe interaction.

99. (Previously presented) The method of claim 97, wherein the electrophoretic movement inhibits target-probe interaction.

100. (Previously presented) The method of claim 79, further comprising a second traversing of the filament through a chamber comprising the target.

101. (Previously presented) The method of claim 100, wherein the chamber used for the second traversing is the same chamber in step (b).

102. (Previously presented) The method of claim 100, wherein the chamber used for the second traversing is a different chamber than in step (b).

103. (Currently amended) The method of claim 100, wherein ~~thea~~ temperature in the chamber used for the second traversing is altered from that used in step (b).

104. (Previously presented) The method of claim 100, wherein a charge in the chamber used for the second traversing is altered from that used in step (b).

105. (Previously presented) The method of claim 100, wherein a current, amperage, voltage or polarity in the chamber used for the second traversing is altered from that used in step (b).

106. (Previously presented) The method of claim 92, further comprising re-circulating target solution from the first chamber.

107. (Previously presented) The method of claim 79, further comprising enhancing detection of binding of the target to one of the probes.

108. (Previously presented) The method of claim 107, wherein enhancing comprises traversing the filament through a second processing chamber that contains

(i) a second liquid phase probe that binds to the target at a location distinct from the first probe, and wherein the second liquid phase probe contains a binding site for a third liquid phase probe; and

(ii) a third liquid phase probe that is detectable.

109. (Previously presented) The method of claim 108, wherein the third liquid phase probe is provided in an inactive state and then activated to facilitate amplification.

110. (Previously presented) The method of claim 109, wherein the third liquid phase probe is labeled with a fluorescent, a chemilluminescent or a radioactive molecule.

111. (Previously presented) The method of claim 109, wherein the third liquid phase probe is a linear molecule with a binding site for itself.

112. (Previously presented) The method of claim 109, wherein the third liquid phase probe is a branched molecule with multiple binding sites for itself.

113. (Previously presented) The method of claim 79, wherein the filament is 1 μm to about 0.5 cm in diameter.

114. (Previously presented) The method of claim 79, wherein the processing chamber is greater than 1 μm in diameter and less than 2.0 cm.

115. (Previously presented) The method of claim 79, wherein the target solution in the processing chamber is present in a volume of less than 100 μl.

116. (Previously presented) The method of claim 79, wherein the filament comprises an axial or radial probe density of greater than 1 probe region per cm.